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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,864	01/26/2001	Douglas M. Albert	IRV1.PAU.40	7129

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EXAMINER

TRINH, MINH N

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 03/20/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/770,864

Applicant(s)

ALBERT ET AL.

Examiner

Minh Trinh

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Applicants' Amendment paper No. 7.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 4, 7-10, 13-19 and 21-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 11, 12, 20, 21 and 46-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed in paper No. 7 (dated 1/21/2003) has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The new title of the invention is objected to because the term: "mircocircuit" (in the title) should be: --microcircuit--.
4. Claim 1 as amended is objected to because of the following informalities: "on which modified surface" (claim 1, line 8) should be:--on which the modified surface--. Appropriate correction is required.
5. Claims 1-3, 6, 11 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conru et al (US 5,086,018) in view of Dlugokecki (US 5,700,697).

Conru et al disclose the method for making stackable microcircuit device comprising steps of providing a plastic encapsulated microcircuit (PEM) 52 that includes a microcircuit having an active surface containing IC and bonding pad 53 and an encapsulant 56 in contact with microcircuit 52 (see Figs 5-6, which shows the microcircuit 52 with bonding pad 53, wires bonds 54 and many associated with this structure thereof, discussed at col. 4, lines 40-68, cols. 6-7), Conru et al do not teach step of removing part of the encapsulant to produce to produce the modified PEM

Art Unit: 3729

having a modified surface on which the modified surface is exposed a conductive member (see claim 1, lines 7-8) as so to connecting the PEM to the bonding pad. Dlugokecki teaches the step of removing the encapsulant (see Fig. 7, col. 10, lines 58-63) to produce the modified PEM having a modified surface on which the modified surface is exposed a conductive member (=conductor pads) for interconnecting and attaching purpose (see col. 2, lines 31-51). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to employ the step of removing the encapsulant material to expose a conductive member of the PEM for interconnecting and attaching purpose as taught by Dlugokecki onto the method invention of Conru et al in order to expose part of the conductive member for the reconstructing and/or attaching without damage to the lead frame and/or other material thereon, minimizing circuit failures would result.

As applied to claim 2, Conru et al disclose the forming lead on the modified PEM to an edge of the modified PEM (see Figs 5-6, refs. No. (51 or 51b or 51a))

As applied to claim 3, Conru et al shows the pre-tested circuit (see Fig. 5, and discussed in abstract bottom section).

As applied to claim 6, Conru et al shows the covering the lead by applying insulation layer (see col. 6, lines 11-15, lines 35-40).

Limitations of claims 11 and 46-47 are also met as set forth above.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Conru et al in view of Dlugokecki

Art Unit: 3729

Conru et al do not teach the conductive member is a gold ball bond. With respect to the materials selection, i.e., gold ball conductive member as recited in claim 12 etc. It would have been an obvious matter of design choice to choose any desired conductive member such as solder paste, conductive pad, etc., since applicant has not disclosed that the gold ball would solve any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the conductive pad taught by the applied art.

7. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conru et al in view of Dlugokecki.

As applied to claim 20, Conru et al or Dlugokecki as modified and relied upon above do not teach the conductive member is a gold ball bond. With respect to the materials selection, i.e., gold ball conductive member. It would have been obvious to one having skill in the art to incorporate the gold ball conductive member in to the invention since it was known in the art that selecting a material from a host of group of available materials on the basis of its suitability for the intended use as a matter of obvious design choice.

As applied to claim 21, Dlugokecki teaches thinning by grinding or mechanical technique, which is including grinding and polishing (see Fig. 7). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to employ the thinning by grinding or mechanical technique as taught by Dlugokecki

onto the method invention of Conru et al in order to meet the manufacturing requirement with respect to the size and configuration.

8. Claim 3, in the alternative is rejected under 35 U.S.C. 103(a) as being unpatentable over Conru et al or Dlugokecki as applied above, and further in view of Falcone et al (US 5,836,071)

As applied to claim 3, if it is argued that Conru et al or Dlugokecki as modified and relied upon above do not teach the pre-tested circuit, Falcone et al teach such that concept (see Fig. 1, which teaches the process of pre tested circuit 20, col.1, lines 65-67, col. 3, lines 40-44, etc.). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the teaching of a process of pre-tested circuit as taught by Falcone et al onto the method invention of Conru et al for detecting and testing purpose, minimizing circuit failures would result.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Conru et al or Dlugokecki as applied above, and further in view of Beilstein, Jr. et al (US 5,466,634).

Conru et al or Dlugokecki as modified and relied upon above do not teach the step of thinning a backside of the modified PEM. Beilstein, Jr. et al teach the thinning (=reducing) the thickness of the package (PEM) by a number of techniques (refer to the discussion at col. 9, lines 29-33). Therefore, it would have been obvious to one ordinary skill in the art, at the time of the invention to employ the reducing thickness of the PEM

Art Unit: 3729

by thinning as taught by Beilstein, Jr. et al onto the method invention of Conru et al in order to form a desired size and shape of the work piece by using the available techniques.

Response to Arguments

10. Applicant's arguments with respect to claims 1-3, 5-6, 11-12 and 46-47 have been considered but are moot in view of the new ground(s) of rejection.

Interviews After Final

11. Applicants note that an interview after a final rejection will not be granted unless the intended purpose and content of the interview is presented briefly, in writing (the agenda of the interview must be in writing). Such an interview may be granted if the examiner is convinced that disposal or clarification for appeal may be accomplished with only nominal further consideration. Interviews merely to restate arguments of record or to discuss new limitations which would require more than nominal reconsideration or new search will be denied. See MPEP 714.13 and 713.09.

Prior Art References

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art references are cited for their teaching of method of stacking PEM devices.

Art Unit: 3729

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Trinh whose telephone number is (703) 305-2887. The examiner can normally be reached on Monday -Thursday 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (703) 308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7307 for regular communications and (703) 305-3579 for After Final communications.

Art Unit: 3729

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.

mt
March 13, 2003

A handwritten signature in black ink, appearing to read 'Peter Vo', with a long horizontal flourish extending to the right.

PETER VO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700